ADEQ Arizona Department of Environmental Quality

PUBLIC NOTICE

PROPOSED LEAKING UST (LUST) CASE CLOSURE

The Arizona Department of Environmental Quality (ADEQ) is considering closure of the following leaking underground storage tank (LUST) cases:

LUST Case File # 0236.01-.04	**Pilot Travel Center #1175**
Facility ID # 0-000937	**14925 S. Stagecoach Trail**
Yavapai County	**Mayer, Arizona 86333**

The former Pilot Travel Center #1175 is located near the intersection of Interstate 17 and Highway 69 in Cordes Junction. The UST system was installed in January 1979 and permanently closed in March 2004. Reportedly, two releases occurred in the mid-1970s and 1984. LUST release numbers 0236.01-.03 were assigned based on an incident report. The UST owner/operator is the Carioca Company. Carioca and its contractor Environmental Technology, Inc. (EN TECH) have been conducting corrective actions due to petroleum releases associated with the UST system. EN TECH conducted site investigations due to the uncertainties with regards to the location and volume of the LUST releases. Numerous monitoring wells were installed on and off-site. The *Site Characterization Report* was approved by ADEQ in May 1998. Due to the site investigations, in 1998 ADEQ assigned LUST release number 0236.01 to the gasoline piping at the east end of the north dispenser island, 0236.02 to gasoline piping at the west end of the south dispenser island between the convenience store and the UST, 0236.03 to piping at the east end of the south dispenser, and 0236.04 to diesel product piping east of the fuel dispenser. LUST releases 0236.05 and .06 were assigned to diesel releases to the soil at the dispensers in 2004 during the UST permanent closure. Site redevelopment in 2004 included the relocation of the fueling station and the installation of two 20,000-gallon above ground storage tanks at the far northeast corner of the site for the current Shell Travel Center 23 (formerly Carioca Shell #23 and Carioca Minute Mart). Details of the UST closure assessment and subsequent site investigation information was submitted in the May 2005 *Site Characterization Report*. LUST releases 0236.05 and .06 were closed in September 2005.

EN TECH prepared a *Corrective Action Plan* in 2000 to address the earlier LUST releases which included the installation of a remedial system of both soil vapor extraction (SVE) and air sparge (AS). Remediation continued until 2009, when the *Corrective Action Plan* was modified to discontinue AS and initiate monitored natural attenuation (MNA) for the groundwater. In May 2010, EN TECH drilled four confirmation soil borings and five more in October 2017. The borings were located at the four LUST release locations and the former UST excavation area.

The groundwater is contaminated with volatile organic compounds (VOCs) associated with petroleum releases. Benzene and methyl tert butyl ether (MTBE) are at concentrations that exceed Aquifer Water Quality Standards (AWQS) and Tier 1 Corrective Action Standards, respectively. MTBE was used as an oxygen booster in unleaded gasoline until approximately 2004.

Data provided by EN TECH in the *Corrective Action Completion Report* received August 27, 2018, and all other available site information has been used by ADEQ to determine whether remaining levels of contaminants at the site are adequately protective of human health and the environment. A site specific risk assessment and detailed file/information search were also completed.

Based upon the results of remedial activities and site specific information, the above-referenced LUST site is eligible for alternative LUST closure under Arizona Revised Statutes (A.R.S.) §49-1005(E). Arizona Administrative Code (A.A.C.) R18-12-263.04 allows case closure of a LUST site with groundwater contamination above the Arizona AWQS or Tier 1 Corrective Action Standards. ADEQ has considered the results of a site specific assessment and the rule specific criteria below:

1. *Threatened or impacted drinking water wells*: According to the Arizona Department of Water Resources (ADWR) records, there are 67 registered wells within ½ mile of the site. Of these registered wells, there are 28 exempt and one non-exempt wells. There are 38 monitoring wells and none registered as other. Several of the registered exempt wells have been abandoned. Private, domestic wells designed to pump no more than 35 gallons per minute are called "exempt wells" because they are exempt from reporting requirements and regulation, other than well registration with ADWR. More exempt wells are drilled in Yavapai County than any other Arizona county, according to the Arizona Cooperative Extension Office of the University of Arizona. In July 2017, EN TECH collected groundwater samples from Carioca's potable supply well (55-203760) which was drilled in 2004. The screened interval is 320 to 420 feet bgs. The Cordes Junction Motel and RV Park potable supply well (55-500627) which is located to the east of the LUST site, was also sampled. AZ0410367 is the Public Water System number in the ADEQ Safe Drinking Water database for the Cordes Junction Motel and RV Park. The system is a non-community water system and ADEQ only requires the system to be sampled quarterly for nitrates/nitrites. The Family Dollar potable supply well (55-222962) which is used for commercial purposes, is located to the southeast of the LUST site was drilled in 2014. The screened interval is 302-402 feet bgs. This well was sampled by EN TECH in September 2017. When the wells were sampled, they were analyzed for VOCs using EPA Method 8260B. None of the wells had VOC contamination present over laboratory reporting limits. Any new or replacement well located at or near this site would need to meet the criteria of A.A.C. R12-18-1302 (B) (3).

2. *Other exposure pathways*: Historic volatile organic compounds (VOCs) soil contamination was present over applicable regulatory standards. In 2010, soil sampling was conducted at locations CB-1 through CB-4. No benzene, toluene, ethylbenzene or xylenes (BTEX) or polyaromatic hydrocarbons (PAHs) at concentrations that exceeded the Soil Remediation Levels (SRLs). 1, 2, 4-trimethylbenzene and 1, 3, 5-trimethylbenzene (TMBs) were present in concentrations that exceeded the SRLs at a depth of 35 feet bgs in CB-2. In 2017, soil sampling was conducted near the release areas from CBR-1 through CBR-5. Each boring was sampled between 5 and 15 feet bgs and analyzed for VOCs, PAHs and tetraethyl lead. Only CBR-2 at 10 feet bgs showed contamination present and only the TMBs were present at 110 mg/Kg and 46 mg/Kg, respectively. EN TECH compared the soil contamination concentrations to the EPA Regional Screening Level for Resident Soil Child. The concentrations are below the applicable screening levels. EN TECH conducted the risk evaluation for inhalation by using the on-line screening version of the Johnson & Ettinger model using both site-specific and default parameters under a residential land-use scenario. A non-cancer hazard index (HI) value was calculated. The HI represents acceptable risk since they were below the target threshold of 1.0. In a ¼ mile land use/receptor survey, there are no schools, day care centers, hospitals or other sensitive populations.

3. *Groundwater plume stability*: Water level measurements going back to 1995 indicate the groundwater flow direction has been predominantly to the northeast with some fluctuations in other directions, and the gradient is relatively flat. Historic groundwater data shows a downward trend in contaminant concentrations until May 2015 when VOC concentrations increased in MW-16 (southwest of Carioca's source area). In 2015, the groundwater flow direction changed from southeast to southwest. It is possible that the VOC contamination did not emanate from Carioca since VOC concentrations were declining in other wells between the source and MW-16, when the groundwater flow direction was to the southwest. EN TECH conducted a trend analysis for benzene and MTBE concentrations in several monitoring wells using the GSI Mann-Kendall Toolkit for Constituent Trend Analysis. The summary of the benzene analysis indicate a statistically significant downward trend in MW-5, MW-18, and MW-20 and also in MW-3, but with less confidence. The summary of the MTBE analysis indicate a downward trend in MW-5. MTBE analysis of MW-16 and MW-18 show a slight upward trend. These wells are off-site nearest to another LUST site. The remaining VOC contamination present over a Tier 1 Corrective Action Standard in MW-5, located at the source, shows concentrations have significantly decreased. The benzene concentration in MW-5 has decreased from 5,400 µg/L to 9.2 µg/L between 1997 and 2018. EN TECH also evaluated the plume stability of benzene in MW-5 using Bio Screen. The model predicts no impacts of benzene at concentrations over 5 µg/L (AWQS) greater than 25 feet away within 15 years based on the 1st order decay model. The model also shows the benzene contamination present below AWQS within 30 feet of MW-5 within the same time frame. The benzene concentrations in down gradient wells from MW-5 also supports that the contaminant plume will continue to shrink over time.

4. *Characterization of the groundwater plume:* Prior to EN TECH's investigation, six monitoring wells had been installed. EN TECH added fifteen monitoring wells during the course of the groundwater investigation. As of February 2018, MW-5, MW-16 and MW-18 had concentrations of benzene that exceed the AWQS, and MTBE concentrations that exceed the Interim Groundwater Policy Tier 1 Corrective Action Standard in MW-16 and MW-18. Samples collected from all other monitoring wells meet applicable regulatory standards. Historic groundwater data shows that the dissolved hydrocarbon plume has been located at or very near the sources. The highest concentration of benzene in MW-5 was 5,400 µg/L in February 1997. MTBE was not analyzed for at that time. MW-16, located off-site in Stagecoach Trail, is near UST facility 0-007159. The USTs at this facility were installed in May 1990. This Chevron branded service station is south of the Cordes Lakes freeway access road, on the west side of Stagecoach Trail. EN TECH was not given permission from this property owner to install monitoring wells, to further characterize groundwater contamination towards the southwest. MW-18 is located in Stagecoach Trail just south of Hitching Post Way.

5. *Natural Attenuation*: Natural attenuation processes include diffusion, dispersion, sorption, volatilization, and biodegradation. A decreasing trend in chemical concentrations in groundwater has been established, which supports natural attenuation is occurring. Hydrologic and geochemical data can be used to indirectly demonstrate the type(s) of natural attenuation processes. In September 2013, EN TECH collected groundwater samples for bacterial enumeration. In January 2014 EN TECH began evaluation of the use of hydrogen peroxide to stimulate growth of petroleum biodegraders. Approximately 200 gallons of 5.25 percent hydrogen peroxide solution was delivered into MW-5. In February 2014, a purged water sample was collected from MW-5 and bacterial enumeration indicated a 3,600 times increase in counts since September 2013. Based on the success of a pilot test, hydrogen peroxide was added to the groundwater between 2014 and 2015 to increase biodegradation. Decreased VOC concentrations indicate that biodegradation was occurring. Monitored natural attenuation (MNA) like dissolved oxygen (DO) and redox potential, were collected between 2014 and 2015 to evaluate pre and post hydrogen peroxide injections.

6. *Removal or control of the source of contamination*. Source control has been completed by the UST system being permanently closed in 2004. SVE operated between November 2001 and April 2004, removing an estimated 19,435 pounds of VOCs. The AS operated from January 2002 through November 2004, and again from September 2005 through August 2009. The AS system added oxygen to the subsurface to enhance microbial activity. Hydrogen peroxide was injected into specific monitoring wells between 2014 and 2015 to increase microbial activity in the groundwater.

7. Requirements of A.R.S. §49-1005(D) and (E): The results of the corrective action completed at the site assure protection of public health, welfare and the environment, to the extent practicable, the clean-up activities competed at this site allow for the maximum beneficial use of the site, while being reasonable, necessary and cost effective.

8. Other information that is pertinent to the LUST case closure approval: The facility and LUST files were reviewed for information regarding prior cleanup activities, prior site uses and operational history of the UST system prior to removal.

Groundwater data for MW-5 (source area)

Date	**Benzene AWQS is 5 µg/L**	**Depth to water (ft.)**
September 1995	**2,200**	72.34
February 1996	**3,100**	72.56
February 1997	**5,400**	73.43
February 1998	**3,420**	72.91
March 2000	**2,500**	71.67
February 2002	**1,100**	72.01
November 2003	**520**	70.08
November 2004	**380**	70.69
October 2005	**170**	67.29
October 2006	**150**	69.21
October 2007	**51**	69.69
November 2008	**79**	68.97
November 2009	**140**	67.73
September 2010	**460**	63.72
July 2012	**320**	65.91
September 2013	**450**	67.80
September 2014	**350**	69.42
September 2015	**300**	69.57
September 2016	**120**	67.75
March 2017	**60**	64.96
July 2017	**14**	64.69
February 2018	**9.2**	65.58

Groundwater data for MW-16 (off-site)

Date	Benzene AWQS is 5 µg/L	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Depth to water (ft.)
December 1997	**1,410**	--	73.75
February 1998	**341**	--	72.69
March 2000	**130**	5.80	71.45
February 2002	**990**	**590**	71.75
November 2003	**84**	50	69.84
November 2004	**16**	<25	70.49
February 2005	**61**	<50	69.05
January 2006	**46**	97	67.56
July 2007	**150**	63	70.28
August 2008	**230**	38	69.19
November 2009	**9.10**	89	67.09
September 2010	**25**	**190**	65.01
July 2012	**26**	**170**	67.21
September 2013	**67**	86	69.91
September 2014	**170**	**110**	71.52
September 2015	**2,400**	**920**	71.58
September 2016	**760**	**450**	69.86
March 2017	**450**	**300**	67.06
July 2017	**320**	**490**	66.81
February 2018	**200**	**680**	72.92

Groundwater data for MW-18 (off-site)

Date	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Depth to water (ft.)
December 1997	--	73.88
February 1998	--	72.94
August 1999	---	71.53
March 2000	13	71.70
February 2002	**140**	72.06
August 2003	**130**	70.94
November 2004	61	70.73
February 2005	67	69.30
January 2006	**250**	67.80
August 2007	**280**	70.53
August 2008	**110**	69.43
August 2009	67	67.32
September 2010	**240**	65.25
July 2012	**180**	67.46

September 2013	**860**	69.35
September 2014	**310**	70.95
September 2015	**530**	71.02
September 2016	**280**	69.28
March 2017	**120**	66.48
July 2017	**130**	67.22

Site specific information concerning this closure is available for review during normal business hours at the ADEQ Records Center http://www.azdeq.gov/function/assistance/records.html , 1110 W. Washington St., Suite 140, Phoenix, AZ 85007. ADEQ welcomes comments on the proposed LUST case closure. Please call the Records Center at 602-771-4380 to schedule an appointment. A 30-day public comment period is in effect commencing **December 7, 2018 and ending January 7, 2019**. Comments may be submitted by mail or email. Written comments should be sent to:

Arizona Department of Environmental Quality
Waste Programs Division
Attn: Debi Goodwin
1110 W. Washington Street
Phoenix, AZ 85007

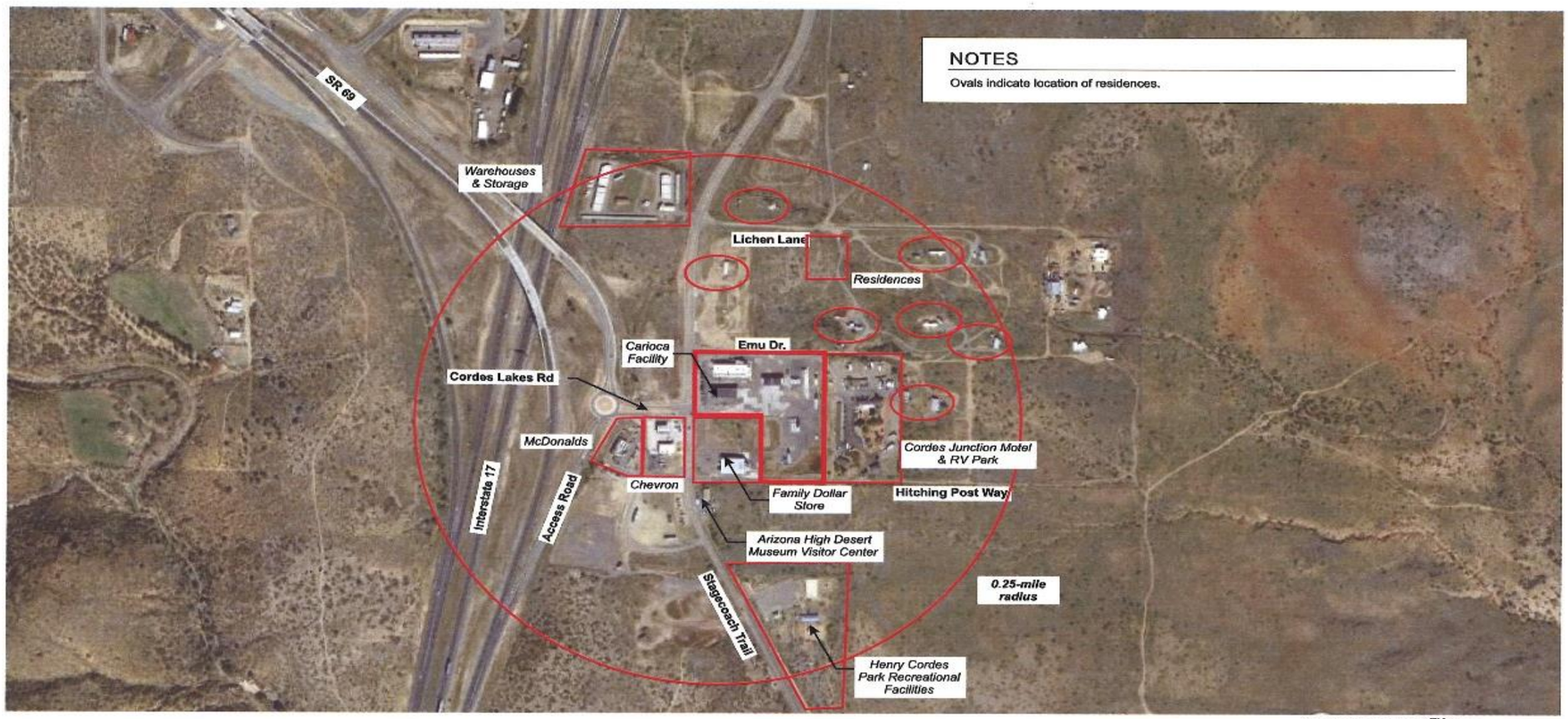
or electronically mailed to: dg1@azdeq.gov.

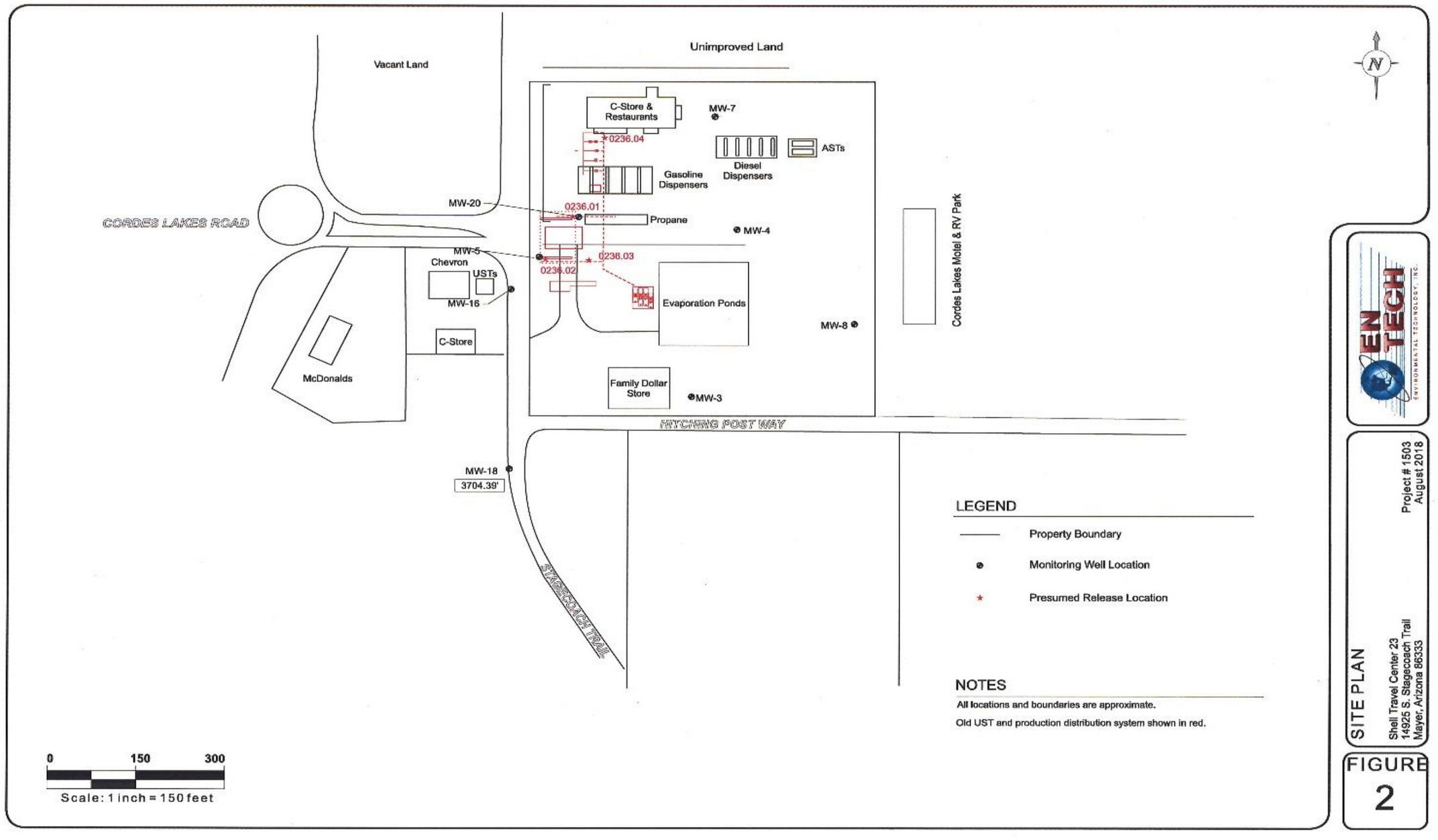
If sufficient public interest is demonstrated during the public comment period, ADEQ may announce and hold a public meeting. ADEQ will consider all submitted comments and reserves the right to respond to those comments following the public comment period. For more information on this notice, please contact the Sr. Risk Assessor, Debi Goodwin at (602) 771-4453 or at dg1@azdeq.gov.

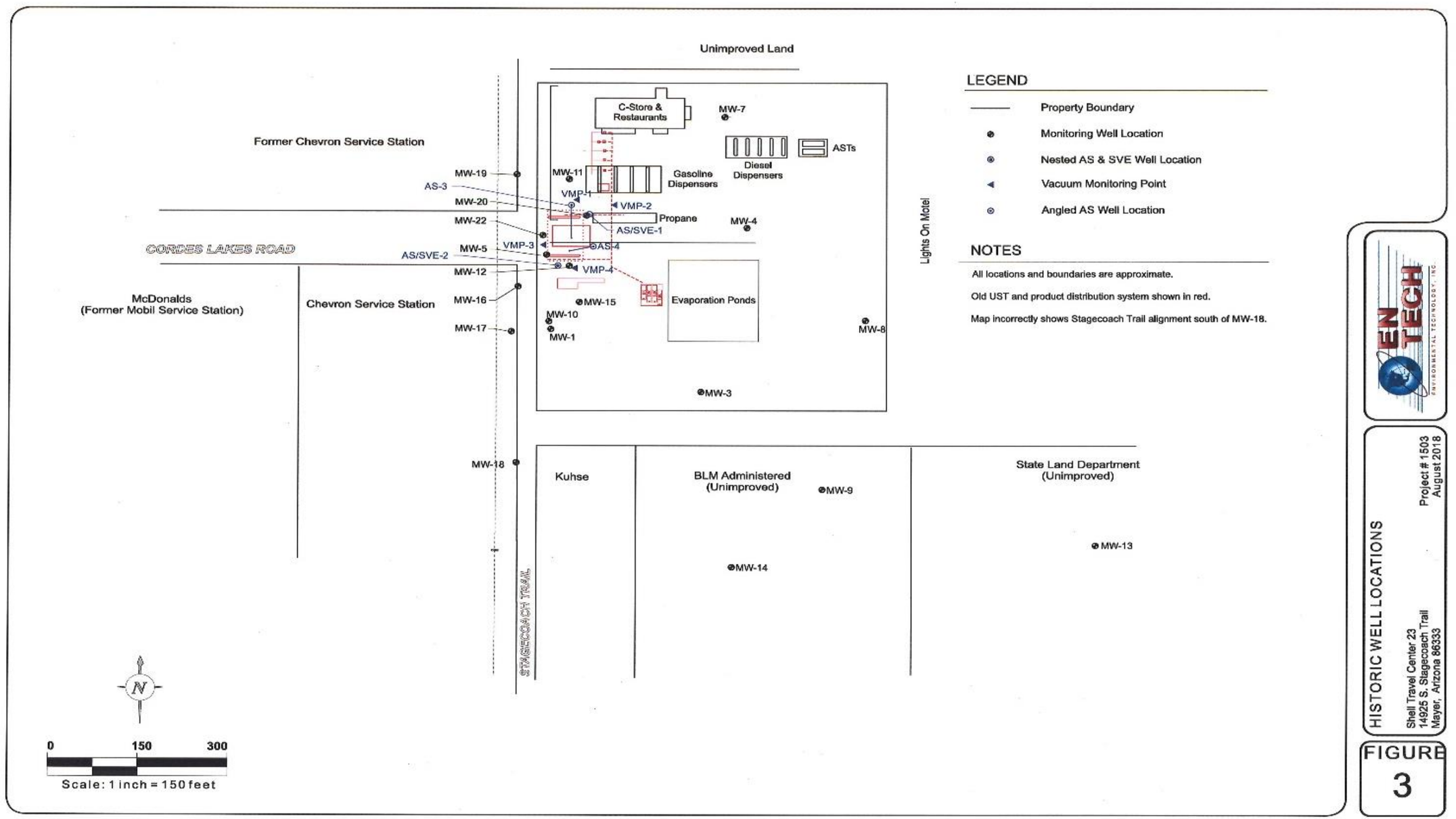
Copies of the cited statutes and rules can be found at:
http://www.azleg.gov/ArizonaRevisedStatutes.asp?Title=49, and
http://www.azsos.gov/public_services/Title_18/18-12.htm

ADEQ will take reasonable measures to provide access to department services to individuals with limited ability to speak, write or understand English and/or to those with disabilities. Requests for language interpretation, ASL interpretation, CART captioning services or disability accommodations must be made at least 48 hours in advance by contacting Ian Bingham, Title VI Nondiscrimination Coordinator at 602-771-4322 or Bingham.Ian@azdeq.gov. Teleprinter services are available by calling 7-1-1 at least 48 hours in advance to make necessary arrangements.

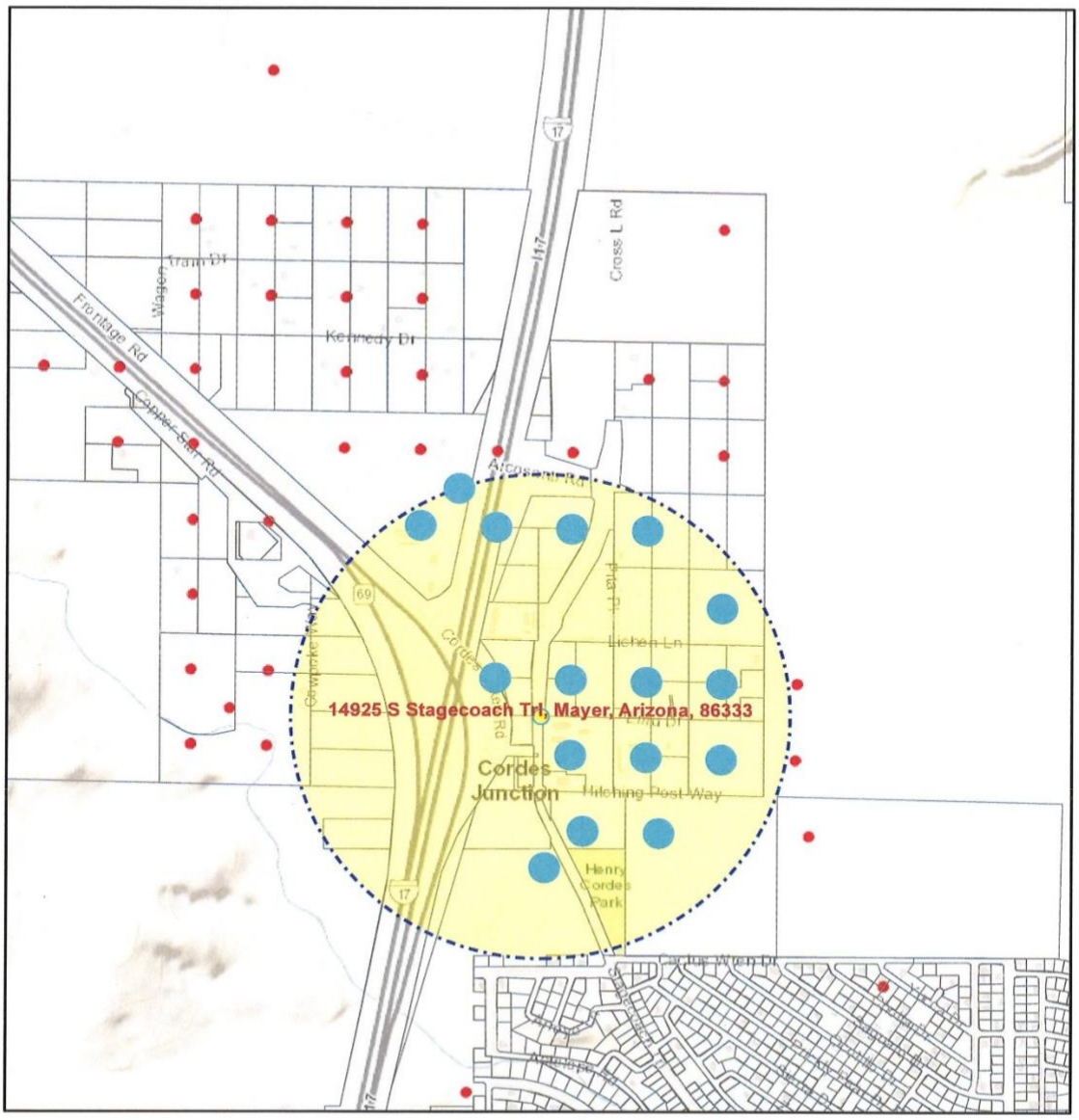
ADEQ tomará las medidas razonables para proveer acceso a los servicios del departamento a personas con capacidad limitada para hablar, escribir o entender inglés y / o para personas con discapacidades. Las solicitudes de servicios de interpretación de idiomas, interpretación ASL, subtitulados de CART, o adaptaciones por discapacidad deben realizarse con al menos 48 horas de anticipación contactando a Ian Bingham, Coordinador de Anti-Discriminación del Título VI al 602-771-4322 o Bingham.Ian@azdeq.gov. Los servicios de teleimpresores están disponibles llamando al 7-1-1 con al menos 48 horas de anticipación para hacer los arreglos necesarios.


NOTES
Ovals indicate location of residences.
SR 69
Warehouses & Storage
Lichen Lane
Residences
Carioca Facility
Emu Dr.
Cordes Lakes Rd
McDonalds
Chevron
Interstate 17
Access Road
Family Dollar Store
Cordes Junction Motel & RV Park
Hitching Post Way
Arizona High Desert Museum Visitor Center
Stagecoach Trail
0.25-mile radius
Henry Cordes Park Recreational Facilities
Source: Google Earth™ image.
0
500
1,000
Scale: 1 inch = 500 feet
N
EN TECH
ENVIRONMENTAL TECHNOLOGY, INC.
SITE LOCATION MAP
Shell Travel Center 23
14925 S. Stagecoach Trail
Mayer, Arizona 86333
Project # 1503
August 2018
FIGURE
1


Vacant Land
Unimproved Land
C-Store & Restaurants
MW-7
0236.04
ASTs
Diesel Dispensers
Gasoline Dispensers
MW-20
0236.01
Propane
MW-4
CORDES LAKES ROAD
MW-5
Chevron
USTs
0236.03
0236.02
MW-16
Evaporation Ponds
MW-8
Cordes Lakes Motel & RV Park
C-Store
McDonalds
Family Dollar Store
MW-3
HITCHING POST WAY
MW-18
3704.39'
STAGECOACH TRAIL
N
0
150
300
Scale: 1 inch = 150 feet
LEGEND
Property Boundary
Monitoring Well Location
Presumed Release Location
NOTES
All locations and boundaries are approximate.
Old UST and production distribution system shown in red.
EN TECH
ENVIRONMENTAL TECHNOLOGY, INC.
SITE PLAN
Shell Travel Center 23
14925 S. Stagecoach Trail
Mayer, Arizona 86333
Project # 1503
August 2018
FIGURE
2


Unimproved Land
Former Chevron Service Station
C-Store & Restaurants
MW-7
ASTs
Diesel Dispensers
Gasoline Dispensers
MW-19
AS-3
MW-20
MW-22
MW-11
VMP-1
VMP-2
Propane
AS/SVE-1
MW-4
CORDES LAKES ROAD
MW-5
AS/SVE-2
VMP-3
AS-4
MW-12
VMP-4
McDonalds
(Former Mobil Service Station)
Chevron Service Station
MW-16
MW-15
Evaporation Ponds
MW-17
MW-10
MW-1
MW-8
MW-3
Lights On Motel
MW-18
Kuhse
BLM Administered
(Unimproved)
MW-9
State Land Department
(Unimproved)
MW-13
MW-14
STAGECOACH TRAIL
N
0
150
300
Scale: 1 inch = 150 feet
LEGEND
Property Boundary
Monitoring Well Location
Nested AS & SVE Well Location
Vacuum Monitoring Point
Angled AS Well Location
NOTES
All locations and boundaries are approximate.
Old UST and product distribution system shown in red.
Map incorrectly shows Stagecoach Trail alignment south of MW-18.
EN TECH
ENVIRONMENTAL TECHNOLOGY, INC.
HISTORIC WELL LOCATIONS
Shell Travel Center 23
14925 S. Stagecoach Trail
Mayer, Arizona 86333
Project # 1503
August 2018
FIGURE
3

Pilot Travel Center #1175



October 29, 2018

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0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Arizona Department of Water Resources, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS

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